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# **The Roles of Chief Information Officers in Domestic and International Corporations\***

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## **Introduction**

During the 1970s and 1980s, a body of research in the field of management centered on the roles of the top level managers in international, global and transnational companies. During the 1980s and 1990s, top information systems managers in domestic companies were studied at some depth in attempts to determine how their roles were defined and what influences have contributed to their continuing evolution. Grover, et al. (1993), studied the roles of the chief information officer (CIO) based on the categorizations of Mintzberg (1970) concerning the ten job roles of managers. McFarlan (1992) and Kanter and Kesner (1992) also conceptualized the role of the CIO in the particular context of the multinational information systems environment.

Jarvenpaa and Ives (1994) expressed the importance of investigating the roles of the CIO this way:

The senior information systems managers can begin to truly impact the form, structure, and culture of their organizations by focusing on activities where they are positioned to add value: ...spiritual leader or at least co-conspirator in cultivating the new values, attitudes, and behaviors of information use and sharing, ...providing integrative tools, such as organizational memory, ...active involvement in reengineering the network into its new network form, ...designer of the information architecture and the accompanying corporate highway systems...and social engineering that must accompany them....

The purpose of this study is to examine the roles of CIOs of large international companies which have a focus on use of information technology (IT). Differences and similarities between the roles of these CIOs and those of CIOs studied in previous works are identified.

## **Literature Review and Analysis**

Mintzberg (1971) defined the role of manager in terms of ten functions: leader, figurehead, liaison, monitor, disseminator, spokesperson, entrepreneur, disturbance handler, resource allocator, and negotiator. Since the Mintzberg work was published, research has continued concerning the roles of managers in general and the changing

nature of these roles in international businesses. During this time, the job of CIO has been defined, developed, refined, expanded, studied, ridiculed and elevated. The term chief information officer originated in the early 1980s and was the subject of a book published in 1984 (Diebold Research Group). During the following decade, articles have appeared in the popular press, as well as in both the practitioner and scholarly literature, concerning the CIO and the relevance of the job, description of the job, and future of the job.

One of the first works to report the study of the roles of the "CIO" appeared in *MIS Quarterly* in 1985 and reported the "changing role of the corporate CIO" (Benjamin, Dickenson & Rockart). Soon thereafter *Business Week* carried a piece referring to the CIO as "management's newest star" (Bock, Carpenter & Davis 1986). Then two years later Donovan (1988) found that CIOs were being transformed into network managers, and four years later *Datamation* carried a piece entitled the "Out of Touch CIO" (Carlyle 1990).

Rockart (1988) posited that a change in "information systems leadership role" was occurring. He presented a list of traditional major IS functions and "newly critical functions in the late 1980s and 1990s." By the early 1990s, the role of CIO was being examined in light of not only the changes in communication technology and the advent of networks but also the changes in organizational structure occurring in corporate America and the internationalization of business enterprises throughout the world. Applegate and Elam (1992) found strategic planning to take up most of the time of the newly appointed executives studied. Operations and systems development, taken together, took most of the time of the experienced managers. Membership on the company's strategic policy committee occurred fairly frequently and newly appointed executives placed importance on establishing informal networks both inside and outside the organization.

Another paper, speculating on the role of the transnational CIO, listed six tasks that are key to the job, which was characterized as "extraordinarily challenging and difficult" (McFarlan 1992, p. 491). These roles are consistent with the findings of Applegate and Elam regarding how the executives spent their time and how they interacted with the organizational and external environments. According to McFarlan, the roles of the transnational CIO vary depending on the size of the organization, the breadth of transnational activities, and the firm's current state of IT sophistication. McFarlan concludes by suggesting that "the primary role of CIO is as a planner, initiator, and a generalist" (p. 493).

Kanter and Kesner (1992) suggest that the chief information officer in a global business enterprise serves in the roles of catalyst and facilitator. A key component of the success of a "global information officer" is the recognition that he/she must operate in a context where he/she has "influence without authority." In addition, he/she must learn to utilize "mutual respect and understand the culture of each and every host country where corporate IS operations reside, and learn to deal on a peer level with IS people spread throughout the organization worldwide" (p. 478). The critical success factors listed by

Kanter and Kesner relate directly to the lists of CIO roles that other researchers have studied.

A concept recently applied to the function of the CIO is that of adding value. The Earl and Feeny (1994) profile of the "CIO who adds value" refers to the same types of characteristics that are described by other researchers as the elements defining the role of the CIO.

Grover, et al. (1993) looked in detail at six of the ten roles of managers described by Mintzberg (1971). This study investigated IS maturity and its influence on the various managerial roles. Of the two IS maturity factors studied, end user computing maturity was not found to be significantly related to any of the managerial roles. IS management maturity, however, was significantly related to both the liaison role and the spokesman role.

Two centralization factors were also studied by Grover, et al. IS resource centralization was correlated with three of the managerial roles studied: spokesman, monitor and resource allocator. Though the authors expected to find the positive relationship between IS resource centralization and the spokesman and monitor roles, they reported surprise at the finding that the monitor role was also positively related. The IS management centralization was positively related to the spokesman role only.

The two factors studied are among the many possible influences on the roles of the CIO. Other possible influences suggested by Grover, et al., are company size, industry, personal characteristics, organizational rank of the CIO, IS resource munificence and the economy. In addition, other studies have suggested that the level of internationalization of a company might impact the role of the CIO (e. g., McFarlan 1992, Kanter & Kesner 1992, Jarvenpaa & Ives 1994). The Grover study did not consider whether a company was domestic or international.

## **Research Objectives and Methodology**

Grover, et al. (1993) described the various roles of the CIO in terms of the IS organization, the inter-organizational environment, and the intra-organizational environment. Each of the six roles that they studied is classified as acting within one of those domains or as interacting between two of the domains. This study examines this model to see if it is an accurate characterization of the roles of the international CIO. In addition, the relative importance of roles in the Grover study is applicable to the understanding of international CIO roles. The study also further identifies differences that might exist in domestic and global companies. Factors measuring the degree of internationalization will include the proportion of sales in foreign countries (Deans 1991) and degree of and dispersion of plant investment in foreign countries (Rockart 1992).

An eighty-seven item questionnaire was developed, based on the questionnaire used by Grover, et al., and other research literature. The questionnaire was critiqued by colleagues, and field tested in two companies which were convenient and willing to

participate in the study. After comments were received and some minor adjustments made, the questionnaire was mailed to eighty-eight CIOs. The CIOs selected for the sample were identified by comparing the top 100 companies in the 1994 *Fortune* 500 list with The *Information Week* Top 500 corporate information technology users. Companies that were on both lists were selected and their CIOs identified. All questionnaires were mailed in early 1995.

Two questionnaires were returned undelivered, and eight CIOs responded that they could not fill in the questionnaire due to time constraints or company policy. A total of twelve usable responses were received (14 percent). The respondent CIOs were all experienced in the IS field, with three-fourths of them reporting over 20 years of experience. They were, however, generally relatively new to their present position, with 58 percent reporting less than five years in their present position.

All of the CIOs reported that they spent some time dealing with issues specifically related to the company's operations in other countries and that some of their total employees were located outside the US. Eight (67 percent) reported that they spent less than 20 percent of their time dealing with operations in other countries. The number of IS employees ranged from 500 to 14,000, with fewer than half of these located in other countries. One CIO reported that none of the IS employees were located outside the United States, but half of the companies reported that 41 to 60 percent of their total employees were located outside the US.

Five of the companies reported that from 21 to 40 percent of their revenue is generated outside the US and three companies reported 41 to 60 percent of revenue from outside the US. Two companies reported revenue from outside the US of 1 to 20 percent, and two reported 61 to 80 percent. Four companies reported 1 to 21 percent of plant investment outside the US; four, between 21 and 40 percent; and four, between 41 and 60 percent.

In addition to the demographic data, the questionnaire contained three categories of Likert scale items. Respondents were asked to rate items related to management of information systems and items related to operations in other countries on a seven-point scale from "not important" (1) to "very important" (7). Items in the third category were related to the operations of the IS organization and respondents were asked to what extent each item was implemented. Response options ranged from "not at all" (1) to "to a great extent" (7).

## **Results**

An analysis of the dataset was conducted to determine which items had the highest means. This analysis was conducted separately for each of three categories of the items: items related to specific information systems structures and operations (16 items), items related to management of information systems (46 items), and items related to operations in other countries (13 items).

In the category of IS structures and operations, these responses indicate that the information system user is aware of system projects (mean 6.08), the IS department is responsible for performing systems planning (mean 5.82), information technology is dispersed throughout the organization (mean 5.75), the user is capable of participation in various aspects of systems projects (mean 5.67), and the IS department is responsible for systems analysis and design for organizational units inside the US (mean 5.45). In the management of information technology, the eight tasks with the highest mean importance ratings were planning and implementing change (mean 6.58) , keeping up with technological developments related to your work or to the company (mean 6.18), keeping up with market changes and trends that might have an impact on your department (mean 6.17), integrating subordinates' goals with the company's work requirements (mean 6.00), developing contacts with important people outside your immediate department (mean 5.92), keeping other people informed about your immediate department (mean 5.92), and joining boards, organizations, clubs, etc., which might provide useful work-related contacts (mean 5.92).

The items of highest importance related to operations in other countries were as follows:

aligning the business organization in more than one country (mean 6.20), dealing with general management in other countries (mean 5.80), addressing end-user computing issues in other countries (mean 5.50), talking to employees in other countries (mean 5.30), and education of senior personnel in other countries (mean 5.20).

Responses to these items generally support a hypothesis that the CIO roles of planner, liaison and disseminator are most important in these large international corporations. These preliminary findings also suggest that in large international companies the IS organization is mature and decentralized. The roles of the CIO are closely aligned with those expected to be found for other high ranking officers and do not focus on expertise in specific technological areas.

## **References**

References are available on request. Requests should be addressed to the authors.